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Study of the p_T spectrum of the Z boson at LHC using leading-order event generators

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The measurement of the production cross section and transverse momentum (p_T) spectrum of Z boson at the LHC provides first tests of the Standard Model (SM). This measurement could be sensitive to exotic physics processes in new energy regime. The Z boson production is also a common background process for many other physics analyses and therefore it must be well understood. In this contribution, we will present a study of Z boson production in association with jets with p-p collisions at a center-of-mass energy of 13.6 TeV at LHC, using leading-order event generators such as PYTHIA and HERWIG. The Z boson has been reconstructed in $\mu^+\mu^-$ and e^+e^- decay channels using different kinematic selections. These selection criteria involve each of the leptons having transverse momentum ($p_T > 20$ GeV) and within the central region ($|\eta| < 2.4$) of the detector. The jets (anti- k_T) produced are constrained within cone size of $r = 0.4$, having transverse momentum (p_T) of jets greater than 30 GeV and $|\eta| < 1.3$. A comparison of Z_{p_T} spectrum with both the generators will be presented.

Session

Top Quark and EW Physics

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